

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A device for treating spinal deformities, comprising:

a spinal anchoring element adapted to seat first and second spinal fixation elements at a distance spaced apart from one another, the spinal anchoring element having a bore extending therethrough;

a polyaxial fastening element adapted to extend distally through the bore to mate the spinal anchoring element to bone;

a closure mechanism adapted to removably mate to the spinal anchoring element to lock each of the first and second spinal fixation elements in a fixed position relative to the spinal anchoring element, the closure mechanism having a tapered bore extending therethrough that axially aligns with the bore in the spinal anchoring element when the closure mechanism is mated to the spinal anchoring element; and

a set screw having a head that is received within the tapered bore in the closure mechanism, and a threaded shaft adapted to threadably engage threads in the bore in the spinal anchoring element to mate the closure mechanism to the spinal anchoring element, wherein the set screw is configured to prevent polyaxial movement of the fastening element relative to the spinal anchoring element when the set screw is fully threaded into the bore.

2. (Original) The device of claim 1, wherein the spinal anchoring element includes a first recess adapted to receive a first spinal fixation element, and a second recess spaced a distance apart from the first recess and adapted to receive a second spinal fixation element.

3. (Previously Presented) The device of claim 2, wherein the spinal anchoring element includes a central portion positioned between the first and second recesses and adapted to receive the fastening element for mating the anchoring element to bone.

4. (Previously Presented) The device of claim 3, wherein the central portion includes the bore extending therethrough.

5. (Previously Presented) The device of claim 4, wherein the closure mechanism includes a central portion adapted to receive the set screw for mating the closure mechanism to the spinal anchoring element.

6. (Cancelled).

7. (Previously Presented) The device of claim 1, wherein the fastening element comprises a bone screw.

8. (Original) The device of claim 3, wherein the first recess is formed in a first end portion of the spinal anchoring element and the second recess is formed in a second, opposed end portion of the spinal anchoring element.

9. (Original) The device of claim 8, wherein each end portion includes a superior surface and an inferior surface, the first and second recesses being formed in the superior surface.

10. (Original) The device of claim 9, further comprising a bone engaging member extending distally from the inferior surface of each of the first and second end portions.

11. (Original) The device of claim 10, wherein each bone engaging member comprises a spike adapted to extend into bone to prevent rotation of the spinal anchoring element.

12. (Original) The device of claim 8, wherein the closure mechanism includes a first end portion adapted to lock a spinal fixation element within the first recess, and a second end portion adapted to lock a spinal fixation element within the second recess.

13. (Withdrawn) The device of claim 12, wherein the first and second end portions on the closure mechanism each include a bore formed therethrough for receiving an engagement mechanism adapted to extend into and engage a spinal fixation element disposed within each of the first and second recesses in the spinal anchoring element.

14. (Withdrawn) The device of claim 13, further comprising first and second engagement mechanisms, each engagement mechanism including a proximal, threaded portion adapted to mate with corresponding threads formed within the bore in the closure mechanism, and a distal pin member adapted to extend into a spinal fixation element positioned in each of the first and second recesses.

15. (Original) The device of claim 1, further comprising first and second spinal fixation elements adapted to be disposed between the spinal anchoring element and the closure mechanism.

16. (Original) The device of claim 15, wherein each spinal fixation element comprises a flexible fixation element.

17. (Original) The device of claim 15, wherein each spinal fixation element is formed from a bioabsorbable material.

18. (Original) The device of claim 2, wherein each recess has a substantially concave shape.

19. (Withdrawn) The device of claim 2, wherein each recess includes at least one protrusion formed therein and adapted to extend into and engage a spinal fixation element positioned therein.

20. (Withdrawn) The device of claim 2, wherein the closure mechanism includes at least one protrusion formed thereon and adapted to extend into and engage a spinal fixation element disposed in each of the first and second recesses formed in the spinal anchoring element.

21. (Currently Amended) A medical system for treating spinal deformities, comprising:

first and second flexible spinal fixation elements;

a plurality of spinal anchoring devices adapted to mate to a plurality of vertebrae and to engage the first and second spinal fixation elements such that the first and second spinal fixation elements can be tensioned between the plurality of spinal anchoring devices to adjust a position of the plurality of vertebrae in both a sagittal plane and a coronal plane when the plurality of spinal anchoring devices are implanted in a plurality of vertebrae, at least one of the spinal anchoring devices being adapted to receive a polyaxial fastening element for mating the spinal anchoring device to bone and a locking mechanism axially aligned with the fastening element to lock the first and second spinal fixation elements to the spinal anchoring device,

wherein at least one of the plurality of spinal anchoring devices includes a spinal anchoring element and a closure mechanism adapted to removably mate to the spinal anchoring element to lock the first and second flexible spinal fixation elements therein, the locking mechanism being adapted to sit within a tapered bore extending through the closure mechanism, and the locking mechanism being

adapted to threadably mate with a bore formed in the spinal anchoring element to mate the closure mechanism to the spinal anchoring element and to prevent polyaxial movement of the fastening element relative to the spinal anchoring element when the locking mechanism is fully threaded into the bore.

22. (Cancelled).

23. (Previously Presented) The system of claim 21, wherein the spinal anchoring element and the closure mechanism each include first and second recesses formed therein for seating the first and second spinal fixation elements therebetween.

24. (Cancelled).

25. (Previously Presented) The system of claim 21, wherein the first recess in each of the spinal anchoring element and closure mechanism is spaced a distance apart from the second recess in each of the spinal anchoring element and closure mechanism.

26. (Cancelled).

27. (Previously Presented) The system of claim 21, wherein the fastening element comprises a bone screw, and the locking mechanism comprises a set screw.

28. (Previously Presented) The system of claim 23, wherein the tapered bore in the closure mechanism and the bore in the spinal anchoring element are positioned between the first and second recesses.

29. (Original) The system of claim 25, wherein the first recess is formed in a first end portion of each of the spinal anchoring element and the closure mechanism, and the second recess is formed in a second, opposed end portion of each of the spinal anchoring element and the closure mechanism.

30. (Original) The system of claim 29, wherein the first and second recesses have a substantially concave shape.

31. (Original) The system of claim 29, wherein the recesses are formed in an inferior surface of the closure mechanism and a superior surface of the spinal anchoring element.

32. (Withdrawn) The system of claim 31, wherein the first and second recesses in at least one of each closure mechanism and each spinal fixation element includes at least one protrusion formed therein for extending into and engaging the first and second spinal fixation elements.

33. (Original) The system of claim 21, further comprising at least one bone engaging member formed on at least one of the plurality of spinal anchoring devices for extending into bone to prevent rotation of the spinal anchoring device relative thereto.

34. (Original) The system of claim 21, wherein the first and second spinal fixation elements are flexible.

35. (Original) The system of claim 21, wherein the first and second spinal fixation elements are formed from a bioabsorbable material.

36-52. (Cancelled).

53. (Previously Presented) The device of claim 1, wherein a distal terminal end of the set screw contacts a proximal terminal end of the fastening element to prevent polyaxial movement of the fastening element relative to the spinal anchoring element when the set screw is fully threaded into the bore.

54. (Previously Presented) The system of claim 21, wherein a distal terminal end of the locking mechanism contacts a proximal terminal end of the fastening element to prevent polyaxial movement of the fastening element relative to the spinal anchoring element when the locking mechanism is fully threaded into the bore.